

AMERICAN JOURNAL OF PHOTOGRAPHY.

Published by THOS. H. McCOLLIN & CO.

VOL. XI.

PHILADELPHIA, NOVEMBER, 1890.

No. 11

THOS. H. McCOLLIN, Managing Editor.

J. F. SACHSE, Associate Editor.

SOME HINTS ABOUT NEGATIVES.

WITH the present month the out-door season of the amateur and tourist photographer draws to a close. The days have again become short, the trees leafless, the hillsides bleak, and the romantic valleys cheerless, and there is little to tempt any but the pronounced enthusiast to wander forth with his tripod and camera. The great proportion of the outfits will be laid aside and neglected, with perhaps an occasional exception when they are brought forth from the shelf and set up for a few flash-light effects, after which they are set back until the zodiacal Taurus once more reigns supreme. Of course this does not allude to the photographic student or enthusiast, for to him the winter season brings the most interesting work of the year, viz., lantern slides, together with the opportunity for experiment and research in every department of the photographic art.

Strange as it may seem, the most neglected branch of amateur photography of the present day is the care and use of the negatives after we have them. The tourist as well as the general amateur during the season exposes plate after plate, develops and fixes them, examines them, is pleased or dissatisfied with the results, as the case may be, after which the negative is put on the shelf along with many others in some out-of-the-way closet, box, or drawer, and the creator of the "latent image" soon forgets all about them, his mind becoming engrossed with new and different subjects, which are in turn destined to fall into the same groove. It is true that occasionally a few prints are made from a few of the negatives, but this represents but a small proportion of the whole number of the negatives taken. The great majority are soon forgotten, and at the next semi-annual house-cleaning find their way into the ash-bin.

Independently, it would be an interesting fact to know what proportion of the hand-camerists' "button pressures" ever see the light of day in a printing-frame,—we here allude to the perfect negatives not the failures. But to return to our subject, we would suggest to all amateur and photographic tourists, now that the long evenings are at hand, to gather all of their photographic results, and put their negatives in envelopes, such as come for the purpose, classify and number them, and during the coming months have at least one print made from each and every negative, good, bad, or indifferent; have these mounted on a plain white card, leaving at least a two-inch margin around the print,—this will give ample room for notes or references for the future. These notes should give the exposure, stop, development, and lens, also the date, and if a view or building, where located, and anything of interest connected

with the special view. If the picture contains portraits or figures, add the names and the occasion. This work will be found to be an interesting occupation,—in fact, the tourist will go over his trip once more; while photographically the comparison of the various prints will prove an instructive lecture for the future.

The prints may then be sorted out according to the subject, and if not bound into a volume can be placed in pasteboard boxes the size of the mounts, a separate box being used for each variety of subject; this is probably the best plan where there are many pictures of different subjects. Where the factor of expense becomes an item, and the amateur cannot do his own printing, we refer him to the excellent paper on "Artistic Blue Prints," from an esteemed contemporary, which is republished in the present JOURNAL. But no matter which plan you adopt, get the prints, and preserve and classify your negatives; you never know when any special negative will become of value, and unless you employ a system it is just then that you cannot find the one you want.

We were never more impressed with this necessity of a proper classification than on an occasion early last spring. We applied to a prominent member of our photographic society for a negative of a historic subject, which was wanted for an illustration. He had the negative, and wanted to loan it to us, but could not find it. He was certain that he had it; but there it was somewhere among hundreds of others, all piled helter-skelter in a closet, one on top of the other with a piece of newspaper between them; many were ruined, some broken, others spoiled by the dampness of wall. In reality, the work of this amateur, which represented years of labor and hundreds of dollars, was really valueless for the want of proper care and classification of the negatives after he had made them.

In our own practice we put each negative in an envelope, and stand them on end in a strong pasteboard box made for the purpose, and which holds fifty plates. We number the box on the outside, say 800-849, 850-899, etc. We then index the plates in a book under the proper subject; and any plate in our collection can be found in half a minute, and they are safe from dampness, dust, and interference. Where many subjects are treated it will be found to be an advantage to reserve a different box for a special subject. Quoting again from our own practice, say the 100's are historic landmarks; 200's, revolutionary subjects; 300's, colonial churches; 800's, experiments with growing plants; 900's, microscopical subjects, etc.

In conclusion, we will say that, if we can afford to make negatives, we should also afford or be willing to take care of them, bearing in mind that with the various changes which fleeting time brings we never know how soon some negative in our collection may be in demand, and amply repay for the little extra trouble it takes to preserve and classify them.

JULIUS F. SACHSE.

TO MAKE THE PENCIL BITE ON GELATINE IN RETOUCHING.—Amateurs desirous of retouching their negatives will learn with pleasure that essence of turpentine (essence grasse) spread over the negative by means of a small flannel wad (on the gelatine side), does not injure the transparency of the image, on which the pencil can be used as well as on paper. The quantity of the essence should be as small as possible; remove the excess with a wad of clean flannel. Should there be any pencil lines to remove, efface them with the same essence.—*L'Amateur Photographe.*

CUTTING PRICES.

THERE is no subject that is of more importance to the professional photographer than that of the prices which he receives for his work.

It is one upon which we occasionally see good articles published in the journals, it never escapes notice at the conventions, and we feel that scarcely too much can be said upon it, or rather that it is one which should never be allowed entirely to rest.

The difficulty in writing upon the subject is that we only reach the photographer himself, and he being thoroughly conversant with it can merely be encouraged and sustained.

What is really wanted in the matter is a better understanding of it by the public, who form the mass of patrons of the photographic art,—a just knowledge of what constitutes a really good photograph, and a disposition to meet half way and sustain those photographers who adhere to a genuine upright business code, being determined to produce only good work and at a fair price.

It must be admitted that it is very hard, with the existing rage for cheap things, to resist the constant pressure to have things ground down to the very lowest figure. So many people do not stop to consider the excellence of what they are purchasing so much as the cheapness, or rather the smallness of the amount for which they may obtain it. Clothes and all that constitutes wearing apparel, our household surroundings, and even our houses come under the same category; we want the most show that we can get for the least money. There are two causes which are constantly bearing to foster this much-to-be-regretted condition,—namely, fashion and love of show. We don't want things to last too long, because in a few weeks or months, at best, they will be out of style, and must be replaced by newer articles; and at the same time we want to make the most possible display we can for the least outlay. Is it to be wondered at, therefore, that so many in all departments of trade do their best to cater to this desire, and that the genuine idea that a high standard of excellence in anything should be attained and maintained is so completely submerged?

Photography, for a number of good reasons, cannot be classed with most of the mechanic arts and arts of daily trade. It is, for instance, so much a fine art that it requires a special tact or ability to prosecute it successfully, and in addition to this it involves a number of progressive operations, each one of which requires the nicest and most thorough skill to bring to a successful completion. How few indeed know that there are more than a dozen different pieces of nice manipulation, some of them requiring hours of careful attention, from the taking in hand of a piece of glass to the handing over of a finished likeness, and that a slight failure in any one of these involves the loss of the work; nor does it occur to them that a failure in the last stage causes the loss of the material and time which has been bestowed upon the whole.

The ideas of people generally are rather crude upon the subject of photography. They hold it is analogous to any of the ordinary mechanical printing processes. They imagine that the photographer simply has to put a plate of glass, coated with something, in the camera, which imposing-looking contrivance makes your picture upon it, and then he runs off as many copies from this plate as may be required,

under a press worked, if not by steam, at least rapidly by hand. It seems unfortunate, indeed, that the process of producing a print from a negative should ever have been given the appellation of printing, because all are so familiar, in a general way, with the art of letter-press printing that they are misled by the term into a conception that photographic printing is a process in every respect analogous to it.

It is true that photography in its most rudimentary form is so far mechanical that it may be automatically performed, as instanced in the "penny-in-the-slot" contrivances which have made their appearance within the past eighteen months, and which, we fear, will only further mystify and mislead the public in regard to the true nature of that which is necessary to the production of a good artistic photograph.

If it could only become fairly understood by the mass of those who are daily having their likenesses taken, that the road which must be traveled to secure a good photograph is a complex one, and how wide the difference is between a common tintype and a fine artistic silver-print, we think they would better sustain those photographers whose aim it is to acquire and maintain a reputation for excellence.

We fully appreciate the desire that all prudent people have to secure what they want as reasonably as possible, and we would not be understood as for a moment advocating exorbitant prices; but there is a reasonable limit, which is very easily arrived at by simply computing the value of good materials and fair skill, added to expenses of business location; and when thinking people see costly establishments advertising showy work at absurdly low prices, we would have them understand that there is something vitally wrong.

When we see photographers in fashionable and expensive quarters advertising cabinet portraits at two dollars per dozen, we know well what an injurious effect it must have in all directions; and we feel that the firms who do so should receive the severe censure of all the brother-craft. In the first place, the public are misled. They think that if so and so, who have a great name and fine location, can furnish work at that price, every one else should; and they do not know that if they went there they would not *have* the work offered them at that price, but would be enveigled into ordering their likenesses taken in a manner probably about equal to that furnished by any good photographer, and ten to one at a much higher price than the usual fair rate. Such tricks are ruinous for all smaller striving enterprise. If a man wishes to build up a reputation he must turn out really excellent work; and how is he to do so if he is to have "cabinets" at one dollar and a half and two dollars per dozen constantly pitched in his teeth. Then think of the man of established reputation and honorable and upright business principles who turns out nothing but first-class work at fair prices. How must he be explaining constantly to the unthinking why he does not also do his work at such very attractively low figures. It is probably in vain that he tells them that he uses only the best of materials and employs the highest skill which he can secure, and casts out every print that is in the slightest degree inferior; in addition to all of which he puts his own ability into the posing and lighting, which, if he possess artistic talent and has improved himself by proper study, is worth much indeed.

Such business modes as conduce to the breaking-down of good prices are pernicious in the extreme, and exert a pressure that insinuates itself into every branch. The manufacturer and stock-dealer, more especially the latter, daily find the influ-

ence irksome, and must bear up with moral energy to meet and opposite it,—and particularly now, with silver advancing and increased duties, necessarily increasing the value of so many things the photographer is dependent upon that must be imported from Europe.

Let us hope all may give earnest thought to these matters, and feel the importance of a general sustaining influence, which will be mutually beneficial to the art of photography, both in its business and its higher aims; and let us ever be out upon all cheapening which may be the result of catch-penny tricks, inferior work, or of illegitimate business modes, and let every photographer bend his energies to the production of excellent work only, and to the maintaining of good prices.

XANTHUS SMITH.

LANTERN SLIDE MAKING WITH THE CAMERA.

IT would be no very difficult matter for us to enter upon a lengthy disquisition here as to the merits of the rival processes of lantern slide making by contact and by the camera.

This it is not our purpose to do, however; but we shall simply give some practical points in connection with the latter method, which we have found valuable in our own working, and which we hope will likewise be of value to our readers.

One thing greatly in favor of this method of working is the fact that different sizes of negatives may be utilized for slide making with little or no modification of the apparatus; while in contact printing, of course, the negative must be of the same size as the slide to be made.

In arranging the apparatus for slide making by the camera, it almost goes without saying that daylight is used. Whether full sun or diffused light, will depend upon the situation and frontage of the work-room. Which of the two is to be preferred is not easy to say. Most operators prefer the even diffused light of a northern sky; but in our own practice necessity compelled us to use a southern exposure, and after a little experience we became decidedly fond of it.

To make the difference in working with the north and south light plainer, we will at once proceed to describe the arrangement of the apparatus. In the first place, any small camera, with a plate-holder so arranged as to carry a plate $3\frac{1}{4} \times 4\frac{1}{4}$ inches, is mounted with a good lens, of say 6 to 9 inches focus. Another camera of any convenient size is arranged to hold the negative in the place usually occupied by the ground glass. If the negatives happen to be just the size of the ground glass, all that is necessary is to remove the latter from its frame and insert the negatives instead, keeping them in position by a few small tacks or pins. If the negatives are of a smaller size, a piece of thin wood is cut to the proper size and rabbetted so as to hold the negatives, the whole being then inserted in the ground glass frame and kept there by pins, or better, by a couple of pieces of clock-spring an inch long, confined by a small screw run through a hole in one end, the other end being left free to press the negative carrier firmly into position. As many of these carriers should be prepared as there are negatives to be worked with. The lens and front panel of the camera holding the negative are dispensed with.

A stout, flat board, from five to eight feet in length, is now provided with cross-legs at one end, so that it can be rested on the window-ledge by the other end,

and be firmly supported. If a southern exposure be used, it will be found most convenient to place the board as mentioned, with a large sheet of ground glass or white tissue paper behind the second camera in the window. The board holds both cameras; the one used for exposing the plates being inside or nearest the operator, while the other, which holds the negative, is set quite near the white paper to the window, so that the negative receives a full and equable illumination from the paper. The exposing camera is now brought near enough to give an image of the proper size on the ground glass, and care taken that the exact centre of the image falls on the centre-spot of the ground glass. A sliding front on the exposing camera will greatly facilitate correct centring; though if the cameras differ much in size, it may be necessary to elevate one or other of them on a block of wood. If this be done, see that everything is steady before uncapping the lens to expose; any tremor or jarring would be fatal to good results; so both cameras ought to be firmly screwed or clamped down to the board.

There will now be a space intervening between the lens of the exposing camera and the front of the carrying camera, unless the lens be of such short focus that it can be inserted into the latter. This will seldom happen. The space intervening should always be darkened by throwing a cloth over both cameras, supporting it by two sticks at each side to keep it from encroaching upon the field of the lens. The object of this is to prevent any stray light from entering the lens, and thus to utilize only the light that passes through the negative.

It will not be amiss for us to repeat in this connection some advice which we gave when speaking of mechanical aids to increase brilliancy of image. The principle we have just enunciated—of utilizing only the light that goes directly to the formation of the camera image—is tacitly admitted by all careful photographers, but in practice we rarely find it attended to as it deserves to be. If it was worthy of regard in the days of wet collodion, when plates were of low sensitiveness, it is far more so now, when things are so much improved. Slide making depends greatly upon a clear, brilliant image on the ground glass. Unless we have this to start with, the best chemicals and manipulations will be thrown away. The arrangement of cameras we have just been describing is very practical and inexpensive; but inasmuch as the whole apparatus *faces the light* there will often be reflections from the sides of either camera that will interfere seriously with brilliancy of image. Now, as we mentioned in the article previously referred to, if a large diaphragm of blackened cardboard, or better, card covered with black velveteen, be placed a few inches in front of the sensitive plate, it will cut off these stray lights, and be of great value. It will sometimes be worth while to have such a diaphragm in each camera; they are easily made and as easily adjusted.

Supposing that a north light be selected instead of a south, it will generally be found more convenient to elevate the end of the board carrying the negative camera, so that the sky itself may act as the illuminant, thus filling the function performed by the white tissue paper in the case of the south exposure. As the sun in the south exposure shines upon the paper, it gives, of course, a very brilliant light, far more so than the blue sky in the north, and the exposure will be much shorter. It is open to the objection that when clouds pass over the sun the strength of the light varies very greatly, but this same objection holds true to a great extent with the north light, except that, in the latter case, the exposures will be much shortened when a white cloud drifts into that portion of the sky towards which the apparatus is directed.

When the south light is used, we should recommend that the apparatus be kept horizontal, and the white paper-screen be set rather close to the negative, at a distance of say four or six inches. This will allow room for the hand to pass between, and so facilitate the shading down of special portions of the negative that are too transparent and print too quickly.

The exposure should be made by uncapping the lens, care being always taken to wait until the tremor caused by drawing out the door of the plate-holder has quite subsided.

The question, whether to use gelatine or collodion plates, we leave to our readers to decide for themselves. We ourselves prefer collodion; but excellent results may be obtained on slow gelatine plates, particularly if developed with hydrokinone or verrous oxalate.

The matter of exposure must be settled by experiment, but we must caution our readers never to over-expose plates intended for lantern slides. No restraining or tinkering with the developer will make up for overtiming, and the disagreeable muddiness which it produces.

ELLERSLIE WALLACE.

COMPOSITE HELIOCHROMY.

TO THE EDITOR:

IT is gratifying to me that Dr. Stolze, himself an original and scientific investigator in the same field, is one of the first to recognize the genuineness of my solution of the problem of reproducing the colors of nature by the projection method. He does not, however, believe that my method can be made to so perfectly fulfil theoretical requirements when carried out with color-prints. A year ago I also believed that there were theoretical difficulties in the way of realizing such a complete solution of the problem in that way. Only recently have I succeeded in showing what relation the colors of the prints must bear to the colors of light used in projection in order to perform exactly the same function, and, under like conditions of illumination, secure equally perfect fulfilment of theoretical requirements. In the projection method we build up the luminous image by adding light to light. White is produced by the mixture of the three colored lights used for projection, and black by their suppression. But when we carry out the process to produce permanent pictures, the paper which may form the basis of the picture is itself white, and it is the shadows that are built up by the superposition of color-prints.

Nevertheless, the color-print has exactly the same function to perform as the lantern positive, *i.e.*, to absorb and suppress, by its shading, light affecting our primary color-sensation. If we remove our three positives from the lantern the screen is evenly illuminated with white light. If we then replace the one representing the red sensation its shades will absorb the red light, with the result that the screen bears a picture in the complementary color, light blue-green on a white ground. In the color-print method we commence with a white surface, which corresponds to the fully illuminated screen, and the shadows of the color-print representing the red sensation when laid upon this surface absorb the same kind of rays as the positive in the lantern, and with the same result, a delicate blue-green monochrome picture on a white ground. Superposing the other two color-prints upon the first one on paper is like inserting the other two positives in the lantern. It is only necessary to use dyes

which completely absorb red light, but neither green nor blue-violet, for the print representing the red sensation, green light, but neither red nor blue-violet, for the green sensation, blue-violet, but neither red nor green, for the blue sensation, in order to obtain from my negatives a color-print heliochrome that exactly fulfils all theoretical requirements, provided that it be examined in the same kind of white light that we obtain with the lantern by mixing red, green, and blue-violet rays. The dyes proposed by me in my paper of November, 1888, fulfil this requirement, and color-print heliochromes made therewith, according to my instructions, must therefore exactly reproduce all the colors of nature under the conditions of illumination just stated. We have, then, a theoretically perfect process of reproducing all the colors of nature in permanent prints from three negatives.

In order to obtain colors that appear of exactly the right kind and shade in ordinary white light, dyes must be used each of which completely absorbs all light affecting the color-sensation which it represents, but no other. The colors would then be correct in ordinary white light, but would appear too dark relatively to the white ground. In order to obtain colors that appear brighter in ordinary white light dyes may be used which completely absorb only rays that excite *chiefly* single primary sensations, and other rays in due proportion. The dyes proposed by me also fulfil this requirement, so that in ordinary white light the degradation of color is insignificant, amounting only to the admixture of a little gray.

Philadelphia, Oct. 15, 1890.

FRED. E. IVES.

[The editor of a New York photographic publication, in an "attempt" to prove that Mr. Ives's principle in heliochromy is not new, calls attention to the fact that Duhauron, in his English patent of July 22, 1876, stated that he made three negatives of the same subject, "one by green light, the second by orange light, the third by violet-green," etc., and asks wherein Mr. Ives's method differs from it. We answer that Ives's method represents the application of a true color theory, while that referred to does not represent and is not in accord with any theory that ever appeared in any text-book on color. Green, *orange*, and violet lights do not represent primary color-sensations, neither is it the *green*, orange, and *violet* spectrum rays that most powerfully excite the respective sensations. Duhauron concluded that one negative should be made chiefly by orange light, one chiefly by green, and one chiefly by violet, whereas Ives has shown that the negative representing the green sensation should be made chiefly by greenish-yellow light, that of the blue (violet) sensation chiefly by blue, and that the relative amount of action of each kind of spectrum rays should be definite, in accordance with measurements of the effect of spectrum rays on primary color-sensations, about which Duhauron knew nothing. Although he devoted sixteen pages of patent specification to defining his position, Duhauron was so far from knowing what ought to be done that at last, about three years later, he expressed himself as satisfied with a procedure in which it can be proved that no plate sensitive to red light was used, the negative which should be made chiefly by the greenish-yellow rays was made chiefly by the blue-green rays, and the negative which should be made chiefly by the blue rays was made chiefly by the violet and ultra-violet rays. Duhauron did not state a true or even a definite principle, and his "perfected" process was very far from being capable of correctly reproducing the colors of nature.

The distinctions that some photographic literateurs are pleased to overlook are really of very great importance, amounting to the application of a new principle, which is the keystone of success.

The editor's attempt to make it appear that to Duhauron belongs the credit of discovering the color-sensitizing properties of chlorophyl (not true), and that Ives has claimed that honor (also not true), suggests the thought that perhaps he is feigning ignorance in order to make a show of having an excuse for attacking Mr. Ives. There is one paragraph in the Duhauron specification referred to which the author of this "criticism of Ives," etc., ought not to have overlooked. We refer to that on page 15, in which Duhauron says: "*Notwithstanding the fundamental principle of the triple proofs, there may be circumstances where a fourth negative, a fourth monochrome, would constitute real progress, . . . a black monochrome, or a shade approaching black, destined to be superposed on the other monochromes.*" In view of certain admissions recently made by a person in whom the editor of the journal in question is greatly interested (*Anthony's Photo. Bulletin*, Sept., p. 575, fourth paragraph), it would appear that the sole and only "improvement," in heliochromy, which he claims as his own was patented by Duhauron fourteen years ago, and he is left without a single support to stand on. Misery loves company, and the editor would no doubt like to believe that some one else is in the same predicament.—ED.]

HONOR TO WHOM IT IS DUE.—"THE GRANT PORTRAIT."

AN article has lately been published in one of the blanket monthlies under the signature of the president of the defunct P. & A. M. B. A., in which it is evidently sought to give the impression that that former camera-adjuster has made the familiar and accepted portrait of General Grant, which is so well known throughout the country, when in fact the accepted portrait of General Grant was made in a Philadelphia gallery by Philadelphia artists; we allude to the Gutekunst gallery, where probably more noted men have faced the camera than in any similar establishment in the country.

The portrait of General Grant made at this gallery is the only likeness of the General accepted as correct by the family and his intimate friends and associates.

The original negative of this picture was made in 1865, shortly after the death of President Lincoln, and on his arm still appears the badge of mourning. This portrait has been reproduced throughout the country in almost every conceivable manner. General Grant's opinion of this photograph is set forth in his letter, dated Washington, March 10, 1866: "I beg to acknowledge the receipt of the photographs and cartes you have been good enough to send me. I believe there has been no better likeness taken of me than those from your establishment." That this belief is shared by his companions in arms is plainly set forth in two letters from General W. T. Sherman: "New York, September 17, 1888. Please print and send me the photograph of General Grant standing with his left hand in his pocket, the best of which

I have knowledge." A month later, after the receipt of the prints, General Sherman further states :

NO. 75 WEST 71ST ST., NEW YORK, Oct. 10th, 1888.

MY DEAR SIR :—I thank you quite as much for your kind letter of the 9th as for the two imperial prints of General Grant, which I have always esteemed the best extant. I intend to have one of these framed to form the centre of a group—including Sheridan and myself—which will be over my office-desk in this my new and final home. As I am now the sole survivor this act will be my testimony of the perfection of your work.

Believe me, sincerely your friend,

W. T. SHERMAN.

The crowning triumph, however, for the Philadelphia photographer came when it was proposed by a public spirited citizen of Philadelphia to present a portrait of General Grant to the National Military Academy at West Point, for which purpose Mrs. Grant personally selected the Philadelphia portrait of 1865 as the only correct likeness of the General. This was followed minutely by the artist, and when finished was placed in the Mess Hall of the Academy, where it hangs for all time to come, flanked by the counterparts of his faithful lieutenants, Sherman and Sheridan. J. F. S.

EXPANSION OF PAPER AND DISTORTION.

THERE is considerable misconception among photographers with reference to the expansion and stretching of photographic paper, and the distortion frequently arising therefrom. The terms "expansion" and "stretching," as here used, as will presently be shown, are not synonymous. We have examples now before us of finished portraits made from the same negative that seem to be very dissimilar, inasmuch as in some impressions the features appear to be longer or broader, as the case may be, than they are in others. Not only is there an apparent dissimilarity, but a pair of compasses will, by actual measurement, prove that the fact exists, and sometimes to a considerable extent.

It is now pretty generally understood by our readers that photographic paper, like all other papers, expands when wetted ; also that the expansion is greater in one direction than it is in the other ; hence it has been assumed by some that if one cabinet portrait be printed on paper taken one way from the sheet, and another on a piece cut at right angles to the first, there will be a considerable difference between the two pictures. There will be a considerable difference it is true, but under normal conditions it will be so slight as to be undetectable by the eye. Still, there are instances where marked distortion does exist in some finished prints that is not present in others from the same negative ; and, as we shall show, it is easily accounted for. All papers when moistened with water expand, and the greatest extension is always in the transverse way of the web, while in the longitudinal direction it is very much less, though we have recently seen the reverse asserted. Longitudinally the extension is almost *nil*. We are now referring to machine-made paper, all photographic papers being of this kind. The expansion of paper is analogous to that of wood. A deal board, for example, twelve inches wide, will expand as much or more in its width as it will in a ten or twelve feet length.

Some few years back we went fully into this subject of distorted prints by stretching of the paper. We obtained some Rives's paper as taken from the roll. It was a little over twenty-four inches wide and several yards in length. From this a number of strips, two inches wide and exactly twenty four inches long, were cut, both lengthwise and crosswise. Each strip was then marked with pencil to distinguish the direction from which it was cut. They were then soaked in water for an hour or two to allow of the greatest possible expansion. When carefully measured the strips cut longitudinally were found to have expanded less than the eighth of an inch in length, while the expansion of the others was a little over half an inch. From this it will be seen that it is very unlikely the normal expansion of the paper will produce any perceptible distortion in, say, a cabinet-size portrait. The maximum extension being but half an inch in two feet, it follows that it would be inappreciable in an inch and a half face. Here we are referring to the simple expansion of the paper. We now come to the more important point, its "stretchability," and it is to this that the palpable distortion often met with is attributable.

In our experiments we found, in mounting the wet strips of paper on thick mounting boards with starch in the ordinary way, and gently stretching them in the operation, that those strips cut longitudinally, then dried, measured over twenty-four and a half inches. Those cut from the reverse direction were no less than twenty-five and three-quarters inches. This was with plain paper, but on repeating the experiment with albumenized paper a greater extension was obtained—over two inches in the twenty-four, equal to one-twelfth—in the paper cut laterally.

It will now readily be understood that in two prints from the same negative, made on paper cut crosswise of the web, the one placed on the negative in one direction and the other in the reverse, and both stretched in mounting in the direction of the greatest extension, a very marked difference in the two portraits will naturally result. In the one case the length of the features may be extended one-twelfth in their length, and in the other to an equal extent in the breadth.

It is a very common practice with mounters, when a print is misplaced, instead of removing it entirely from the board, to gently strain it into position; we have often seen it done. In the larger sizes of pictures, such as panels and imperials, one often sees them badly mounted, the edges of the prints not being truly parallel with those of the mounts. This is often attributed to carelessness in the trimming of the print; but very frequently it is due to unequal straining of the paper while attaching to the board.

From what has now been said it will be seen that when any perceptible distortion is noticed in portraits, it should be attributed to the mounting, and not, as is generally done, to the expansion, *per se*, of the paper.—*British Journal of Photography*.

THE REASON WAS APPARENT.—Lawyer: "On what ground do you seek a divorce?" Female client: "My husband is an amateur photographer, and—" Lawyer: "That will do. We'll have no trouble about it. My wife has the craze, too, and I've been taking my meals at a restaurant for two weeks."—*Norristown Herald*.

THE APPLICATION OF NAPHTHALIN-DERIVATIVES AS PHOTOGRAPHIC DEVELOPERS.*

DR. M. ANDRESSEN, of Berlin, the inventor and manufacturer of eikonogen, has lately patented ten new combinations obtained from naphthalin, viz., diamidonaphthalinsulfo-acid and amidonaphtolsulfo-acid, which it is claimed will work a still greater revolution in photographic development. It is stated that the reducing power of these new compounds is so varied and controllable that in the near future a negative may be developed rapidly or slowly, dense or weak, according to the wishes of the operator,—a property which will prove of the greatest practical value in the various branches of the photographic art. These various derivatives are described as follows:

I.—DIOXYNAPHTALINE.

Theoretically there are ten combinations of dioxynaphtaline possible; of these nine are known, six of which appear to be of great value, as they bring out the photographic image rapidly and strongly, and in the opinion of the inventor are especially valuable for instantaneous exposure and gallery work, viz.:

- 1.— α Naphto-hydrochinon.
- 2.— β Naphto-hydrochinon.
- 3.— $\alpha_1 \alpha_3$ Dioxynaphtalin.
- 4.— $\alpha_1 \beta_3$ Dioxynaphtalin.
- 5.— $\alpha_1 \beta_4$ Dioxynaphtalin.
- 6.— $\beta_1 \beta_3$ Dioxynaphtalin.

II.—DIOXYNAPHTALINMONOSULPHO-ACIDS.

Of the various compounds obtained, either by oxydation and subsequent reduction of amidonaphtolsulfo-acids, or by the fusion of naphtoldisulfo and naphthalintri-sulfo-acids with caustic alkali, or by the sulphuration of dioxynaphtaline, resulting in dioxynaphtolmonosulfo-acid, β naphtohydrochinonmonosulfo-acid was the only compound which has proved of practical use.

III.—DIOXYNAPHTALINDISULFO-ACIDS.

The experimental trials of the dioxynaphtalindisulfo acids obtained by the different methods has shown that both of the dioxynaphtalindisulfoites described in D. R. P., No. 49857, have special claims as photographic developers, as they cause the image to come up slowly, but with great strength, a property which makes the compounds of especial value in landscape photography.

IV.—AMIDONAPHTOLE.

Of the different amidonaphtoles, which are obtainable by the reduction of nitrosonaphtole, nitronaphtole, or from the AzO-colors from naphtole, or by the fusion of the naphtylaminsulfo acids, the three following derivatives show extraordinary power and rapidity when used as a photographic developer:

- 1.— α_1 Amido, α_2 Naphtol.
- 2.— α_1 Amido, β_1 Naphtol.
- 3.— β_1 Amido, β_3 Naphtol (obtainable by the fusion of β naphtylamin and β sulfo-acid).

* Translated from Liesgang's Photographisches Archiv.

V.—NAPHTYLENDIAMINE.

The naphtylendiamines require dilute alcohol as a solvent, to combine with an alkaline solution. The two following derivates are said to act rapidly and strongly in developers:

1.— α_1 , β_1 Naphtylendiamin.

2.— α_1 , α_2 Naphtylendiamin.

Together with the advices of above new reducing salts for photographic developers comes the welcome announcement that the manufacturers of eikonogen have at last succeeded in finding a means of entirely preventing this substance from becoming brown and decomposed. The substance by the aid of which the eikonogen is rendered permanent is kept secret. It is merely stated in the circular that a small quantity of the preserving substance is added, and that the eikonogen will in future be manufactured in the form of a white, absolutely permanent powder, for the use of which as a developing agent the formulæ remain the same as hitherto. This improvement will no doubt be welcomed by all those who have tried the eikonogen developer, and appreciate its valuable qualities.

J. F. SACHSE.

EXPERIMENTS WITH CYANINE AS A COLOR-SENSITIZER.

WE have recently been trying a series of experiments with orthochromatic plates, attempting to get true values for all colors, from brilliant scarlet to deep but very pure blue. The former, of course, with ordinary plates—whether with or without a color-screen—comes out quite black, the other quite white.

Amongst other color-sensitizers we gave a very thorough trial to cyanine,—specially recommended by Carey Lea,—and as this substance has not, we think, had the attention it deserves, we give a short description of our results.

The reason why cyanine has not been as popular as it might be is probably greatly due to the difficulty of working plates stained with it. These must, indeed, be worked—till development is well advanced—in all but total darkness. It is probable that a deep green color would be the best to work with, but all our experiments were made with ruby light, the plates being carefully protected from all direct action of the rays throughout the process.

The cyanine was procured from Messrs. Hopkin, Williams & Co. It is in fine flakes of an iridescent greenish color, insoluble in water, but readily soluble in alcohol, giving a brilliant blue solution, which may be diluted indefinitely with water without any precipitation taking place. Examined by the spectroscope a band of very complete absorption is observed. It extends from the bluish green through the green, yellow, and orange, and nearly to the extreme of the red.

We first tried the method particularly recommended by Mr. Carey Lea, namely, to dip the plates for a short time in a comparatively strong alcoholic solution of cyanine,—quarter grain to the ounce,—to wash for a minute or two, and then to use the plates wet, or to dry them. We are sorry that we have to report that we found this process very uncertain. At times the plates were all that could be wished, but more often they were foggy and dirty. We tried all variations we could think of,—drying

the plates after the alcohol and cyanine bath but before washing, and washing them immediately they came from the forms, using the washed plates dry and using them wet, modifying the strength of the solution,—but still the results were always uncertain. We had in mind the statement of Carey Lea, that it was necessary to use only *new* plates with this process, so that the uncertainty cannot be blamed on the age of the plates. Those we used were not a month old.

Afterwards we tried the common bath formula, namely—

Cyanine solution, 1 part in 1000 of alcohol	1 part.
10 per cent. ammonia	1 part.
Water (distilled)	8 parts.

Filtered and used soon after mixing.

This gave good orthochromatic effects, but still a liability to fog and spots. The liability to fog was got over by reducing the ammonia to one-half, and the orthochromatic effects were not perceptibly reduced by reducing the cyanine also to one-half, but there was still a tendency to spottiness. After a series of experiments the following system of working was adopted. The solution was made up as follows:

Cyanine solution (as above)	1 part.
10 per cent. ammonia	$\frac{1}{2}$ part.
Water	$8\frac{1}{4}$ parts.

The plates were dipped for two minutes, then washed under a stream of water for about ten seconds, the surface being wiped with a tuft of soft cotton-wool at the time. The plates were used both wet and dry, but the best results were got with dried plates.

It may be worth mentioning that we tried both pure bromide plates, plates with a little chloride as well as bromide, and plates with iodide up to as much as three per cent. of the whole haloid present, but that we did not find that the iodide had the detrimental effect commonly attributed to it. In fact, the presence of moderate quantities of either chloride or iodide did not seem to have any effect at all so far as orthochromation was concerned.

Now as to the working of the plates, it was found that, without any screen, and working in white light, the yellows and reds were very fairly rendered, all except the deepest reds, but these showed rather too dark, and the blues still showed much too light. The sensitiveness of the plates was increased by several things.

An aurine screen, a little darker than a lemon color, had the effect of giving all colors—with the exception to be hereafter mentioned—in what appeared to be their really true values, these colors including various different reds and blues, as, for example, vermilion and Prussian blue. The exposures with the screen were from two to three times those needed for the plates before treatment.

The exception referred to above is that of green. Although the greater part of the green is absorbed, the sensitizing effect for green is not very great. Still, with the yellow screen the green is much improved, because the plate is rendered generally more sensitive, and the screen, cutting off the blue, does not cut off any appreciable amount of green, whilst it allows the exposure to be considerably increased. Thus the green of pigments is not rendered nearly so black as with an ordinary plate. Still, we found the effect to be barely appreciable in the case of landscape,—that is to say, as concerns the greens. The difference between some landscapes taken with ordinary plates and those taken with cyanine-stained plates and a yellow screen is remark-

able; but it shows almost entirely in the sky and in the distance, which are much improved. The improvement in the foliage is but slight.

Whilst on the subject of color-screens, let us endorse the opinion of Captain Abney, expressed at the Photographic Convention some years ago, that the use of a yellow *light* is much to be preferred to that of a yellow screen whenever it is practicable to use the former. Yellow screens must inevitably interfere with the optical qualities of a lens, whether they be collodion films or glass plates. There is a general impression concerning the former that, because they are very thin, there is not the effect of two reflecting surfaces as there is with glass. This impression is a mistaken one. The definition and brilliance of image are degraded just as much by the thinnest collodion film as by a sheet of flat glass. The only difference is that, on account of the thinness of the collodion film, and of the fact that the two sides must be practically parallel, it is not of much consequence whether it is flat or not. Collodion films have one disadvantage. After a little use they are almost certain to get more or less roughened,—to lose their surface polish, in fact,—and after this they are useless.

There is not this latter objection to glass; but, as has often been pointed out, it is necessary that the glass be really "optically ground," or it will certainly damage the definition of the lens; and even if optically ground the two additional reflecting surfaces tend to lessen the brilliance of the image. Moreover, we have seen so-called "flat" glasses, ground by the best opticians, that were not really flat, but quite perceptibly lenticular. This would, it is true, do no harm were the image focused after the yellow screen had been adjusted; but the lenticularity of the screens we refer to was quite sufficient to put an image out of focus, if the screen were fixed after the focusing had been done.

For landscape work yellow light cannot, of course, be secured; but for the copying of pictures—for which orthochromatic plates and especially cyanine-stained plates are most useful—it always can, and a yellow-colored light does not interfere in any way with the optical properties of a lens, or rather, we should say, does not *appreciably* interfere with the properties. The effect of using a lens corrected in the ordinary way for orthochromatic plates with a yellow light must be that the lens works as one *slightly* over-corrected. It would be interesting to try whether some of the older forms of lenses—especially portrait lenses—which were purposely left slightly *under*-corrected, would not serve for orthochromatic photography without special adjustment of the camera, such as is necessary in using them for ordinary photography.

A yellow light is very easily arranged for copying paintings. In the first place, the yellowness—it is really, of course, feebleness in blue light—of ordinary gas or lamp or incandescent electric light is sufficient, and the sensitiveness of orthochromatic plates to yellow is such that the exposure to artificial light is not at all extravagant. Thus, using two fairly large paraffin lamps, placed about two feet to three feet away from a picture, one a little on each side, and with the direct light, of course, shaded from the lens, we have found exposures of ten minutes ample with stop No. 16 U. S. If we were copying paintings systematically we should decline to make all our exposures by artificial light, fitting up a special gas arrangement. Hereby one element of uncertainty, namely, variation in the intensity of the light, would be

eliminated. The light of the particularly bad gas supplied by the London gas companies is peculiarly well-suited to act as an illuminant for orthochromatic photography.

It is easy, if daylight be preferred, to cut off the greater part of the blue light by covering the glass of the studio, or of the windows of the room in which copying is done, with light yellow-colored tissue paper.

We have found it necessary to use a *very much restrained* developer with cyanine-stained plates to get good results. The developer should be restrained to such an extent that ten to fifteen minutes are necessary to gain density. On the whole, we think that cyanine is a most useful sensitizer for plates to be used in copying pictures, especially those in which warm tints much prevail; but that it is not to be recommended for landscape work. Better results can be got with erythrosine or eosine-stained plates, and these are much less trying to work.

W. K. B.

A PRETTY story of Baron Rothschild and his amateur photography is given by the *Daily News* correspondent at Vienna, as current in that capital. The Baron had found a good point or view half-way up one of the hills rising above the valley of Cortina di Ampezzo in the Tyrol, and arranged his apparatus, ensconced in the black velvet covering which is such a conspicuous item in the photographer's outfit. When he emerged, a fat couple stood before him, whose dialect immediately showed them to be well-to-do Berliners. The husband promised he would pay the photographer handsomely if he consented to take their portraits with the background of Monte Cristallo or the Antelao for the uncles and aunts at home. Baron Rothschild, highly amused at the self-sufficient tone of his would-be patron, said his apparatus was for landscapes only; but this was pooh-poohed by the Berliner, who knew better, and gave his name, adding that he was a banker who could pay for his caprices. Baron Rothschild no longer resisted, and repressing his laughter when the fat lady arranged her dress and put on her sweetest smile, took the portraits. They proved a success, and the Berlin banker gave strict injunctions that he must have at least four copies by noon the next day, as he had fixed his departure for that hour. On the following day one of Baron Rothschild's servants took the photographs to the Aquila Nera, where the Baron's autograph on the beautiful portraits standing out in bold relief against Monte Cristallo created a sensation.

THE EFFECT OF BRIGHT LIGHT ON THE SENSITIVE CENTRES OF THE ORGANISM.—A curious phenomenon was observed at the end of the annual concert given at the Salpêtrière Hospital, Paris, by the Lionnet Brothers, assisted by a great number of artists. The concert over, M. Londe, director of the photographic service of the hospital, wished to "take" the audience hall. For this it was necessary to burn a strip of magnesium. The blinding light, although it lasted but ten seconds, threw several of the patients into a cataleptic state. The effect of light, however, on highly-sensitive persons is known. It is in this manner that, at the Charity Hospital, Dr. Luis acts on his patients by means of the luminous reverberation produced by revolving mirrors.

THE
JOHN CRERAR
LIBRARY



THE OLD TOWER ON JAMESTOWN ISLAND, VA.

NEGATIVE BY
DR. J. T. ROTHROCK.

IVES PROCESS,
CROSSCUP & WEST ENG. CO.

OLD TOWER ON JAMESTOWN ISLAND.

IN more senses than one this is a new world in which we live. A few centuries, at most, embrace all that we have of reliable history. Nowhere do we dig down to uncover an ancient city, and find a still older one beneath its ruins. We have not even a single poor baronial castle to lean a family escutcheon against. But while we have a dearth of ancient history, we are not absolutely without some hoary material. We have made a start in collecting it, and, like other people, we must accumulate more as time passes.

The ruins of the old Roman Catholic church built nearly nine hundred years ago in Greenland by our Viking relatives still remain, and on the bleak shores of Labrador are yet found the remains of the town of Brest, which exactly a century before the Pilgrims landed on Cape Cod had a population of one thousand souls. These represent periods in American history which are none the less interesting because they are ignored and almost forgotten.

Passing by the Newport tower, with its doubts, fables, and romances, there still remains to us the tower of the old Jamestown Church. This is found on Jamestown Island in the James river, some thirty miles above Newport News. Of the early settlement there that alone exists. The illustration shows its present condition. The house now occupied by the owner of the island, though old, is probably considerably later than the tower in date of construction.

The Jamestown tower is built of bricks, red and black in color; alternating after the fashion of those early days. It is most likely that they were imported from England.

Tradition says that the tower was erected in 1609. This, however, can hardly be so. We know too well that a colony which was notoriously wanting in laborers and in mechanics could hardly have built a church so large and pretentious as the one to which this tower must have belonged. Indeed, we have the historical statement that the original church, the one in which Rolfe and Pocahontas were married, was of logs, and I am not sure but that a statement still remains as to its exact size. So far as can be decided, it is most probable that this tower was erected not earlier than 1640. Indeed, there is a suspicion that the earliest settlement was not on this, the western, but on the eastern end of the island.

However, let us venerate the old structure. It is undoubtedly among the oldest of our ruins. It is unfortunate that the State of Virginia has not exercised a protectorate over this sacred spot. It is not less worthy of jealous care than the surroundings of Plymouth Rock. In all kindness we say, it is something of a shame to that State that she has cared so little for Jamestown and the old Westover cemetery. These places have associations quite too large for mere private holding.

Colonel Brown, who now owns Jamestown Island, deserves great credit for his efforts to preserve the tower and its associations. But what can one do against the Goths and Vandals who desecrate such spots?

The very island is washing away. It is probable that under the waters of the James one might find more relics of the early settlement than on the island. Even the old magazine, which a few years ago was still in partial preservation, has been undermined by the river, and is now practically gone. DR. J. F. ROTHROCK.

CERAMIC PHOTOGRAPHY.

ONE of the questions that frequently arise in the minds of those who have noted the rise and progress of the photographic art in its different phases, is why ceramic photography is so much neglected. Most good processes, and this is certainly one, advance with time, though with this particular one it may be said that it is less practiced now than it was formerly.

Yet there are many directions in which its use might be extended, and very profitably too. Hitherto ceramic photography has, for the most part, been associated with portraiture. As early as the fifties, M. Lafon de Camarsac was in the field with burnt-in portraits on enamel; a very little later, Mr. Jonbert showed excellent work of a similar character, as well as some capital photographs vitrified on glass as transparencies. And it must be confessed the work done at this early date has not been surpassed.

Ceramic photography is not difficult, neither is it expensive, nor does its practice entertain any expensive outlay for plant.

With the exception of a muffle furnace, no other apparatus is necessary beyond what is found in every photographic establishment. A gas muffle, even for large sizes, is by no means an expensive affair.

As we have just remarked, those who have given attention to vitreous photography have confined their labors chiefly to portraits, and those principally of small dimensions, such as miniatures for brooches, locketts, etc. However, much larger work, and very good too, has been produced on plaques and tiles up to twelve inches or more. It would appear that ceramic photography is more extensively worked on the continent than it is here, if we may judge from the fact that many photographers who supply burnt-in photographs send the negatives abroad, and have the work executed there by those who work for the trade.

Portraiture would, however, probably be but a minor application of burnt-in photography if it were introduced with vigor in several other directions. Amongst others may be mentioned art decorative purposes. Vitrified copies of paintings on plaques and tiles would no doubt, be extensively used in decorating where tiles of a more or less common description are now used, if they were forthcoming.

Photographs might also be largely utilized in the embellishment of articles in every-day use. What would be more *recherche* than, say, a dinner, dessert, or tea service ornamented with artistic views, or with copies of well-known works of art. With copies of paintings the precise touch of the different artists would be preserved, which is not possible with any other method of reproduction; while with photographs from nature the finest possible detail would be secured,—a quality sadly wanting in the views generally seen on pottery.

It is often asserted that the general public have no taste for copies of paintings; but this, we think, is totally disproved by the large sale cheap copies of them on opal glass have had during the last year or two. By the way, if these pictures had been vitrified into the glass, the majority of them would now be in a far different condition from what they are.

Ceramic photography ought to find extensive employment for window decoration.

Just now there is quite a rage for ornamental windows made up of small panes of stained glass.

Why should not, in place of some of these, photographs—which, it is needless to say, can be produced in any color—be introduced? Of the effect there is no question, and there is little doubt that if once introduced commercially a good demand would soon be created.

With regard to the methods of production, there are several available, each of which is capable of yielding equally good results.

There is the substitution process, though with this variation in color is somewhat limited. There is the dusting-on or powder process, by which any desired color can be obtained; indeed, with it several colors—if of the same fusibility—may be employed in one picture by applying them singly to the parts required, while carefully protecting others.

Then there is the "Carlon" process, in which vitreous pigments are used in place of the ordinary ones.

Photo-mechanical processes may also be utilized in ceramic photography. A collotype print in vitreous colors can be transferred to the ware, and its strength reinforced by dusting on more color, which will adhere to the ink while it is moist. A large proportion of the designs on china and earthenware are printed from copper plates on a gelatine surface and then transferred; and there is no reason why photographically engraved plates should not, for the best work, take the place of hand-engraved ones.

Without doubt there is a good future for ceramic photography in directions in which it as yet has not been turned to any real practical account. But who will take the initiative?

Will it be photographers, or the potters and glass-stainers?—*British Journal of Photography.*

TOMBSTONE PHOTOGRAPHY.

SEVERAL communications have lately appeared in our British exchanges on the above subject, as to the best means of overcoming the difficulties experienced in this branch of photography, notwithstanding how simple the process appears at first sight, or to those who have never tried it. One of the subjects mentioned in our British contemporary was a yellowish kind of granite, with the letters cut in and gilded. As there was little or no contrast between the stone and the gold, together with the inexperience of the photographer (probably an amateur), the plates resulted in failure, as the lettering did not show distinctly. Notwithstanding that orthochromatic and ordinary plates were tried in strong sunlight as well as dull light, the result was always the same. The advice given to overcome the difficulty was to make common whiting into a stiff paste with water, and then fill the letters in with a small palette knife; when dry, photograph. The result would be an excellent white inscription on a dark ground. Another correspondent, in a subsequent number, states that his plan is to take a small knob of whiting, place it in the palm of the right hand and pass it over the line of letters to to be filled, using considerable pressure,—enough, in fact, to crush the whiting as it goes into every crevice of the letters.

Then this wiseacre states that you have only to pass a cloth gently over the surface to remove any dust, and take the photograph. He then goes on to say that in case of white tombstones "dark chrome" should be substituted for whiting. So much for experimental theory. It is not necessary for us to state that the resulting negatives would not be a photograph of the tombstone as it really is, but it would look like a flat surface the shape of the original with coarse letters chalked upon it, and certainly not what it was the intention to portray.

The writer, who has probably had as much experience in this line of photography as any other person in this country, acknowledges that the subject is always a more or less difficult one if it is desired to obtain a legible inscription, no matter whether the stone is a fresh white marble, a cold grey granite, or an old crumbling memento of slate or soapstone, with its skull and cross-bones and "memento mori," weather-beaten and overgrown with moss and lichen. The same difficulties seem to exist to bother the amateur. We acknowledge that at first we had some failures in this special line; but we soon learned to set our camera a little to the side, according to the light, and not directly in front of the stone; result, a legible inscription all the time. This is accounted for by the fact that in sunken (V-shaped) letters one side is usually illuminated a little brighter than the other, except when the sun is directly in front or overhead. So we point the lens towards the brightest side of the sunken letters, and achieve our object where it would be almost impossible to get a good inscription if the camera were set up directly in front of these subjects.

In photographing old historic tombstones of discolored marble, blue slate, grey soapstone, or reddish sandstone, when the inscription is almost illegible, we have frequently resorted to marking a line with our lead-pencil in the middle of the furrow of the sunken letter. Even where the stone was disintegrating and covered with lichens, the single pencil-mark seemed to bring out the whole contour of the letters, and thus save the inscription. This plan has the further advantage that it would be permitted in almost all cases, where such a proceeding as advised in our British exchange would not be tolerated for a moment:

J. F. S.

DEVELOPING SENSITIVE PLATES IN FULL DAYLIGHT.—According to a patent recently taken out in England, it suffices to add to each pint of the developer, preferably the hydroquinone developer, one ounce of the following solution:

Water	24 parts.
Alcohol	24 "
Aurantia	16 "
Carmine	8 "

Which is shaken until complete solution, and afterward filtered. It is needless to say that the plates should be transferred from the frames to the developer in a place free from actinic light. Afterward the development may be followed in daylight without fear of fogging.

WORSE THAN SHARKS.—*Texas Siftings* says that there is something at the sea-side this season worse than sharks. It is the amateur photographer, with his tripod and camera.

ARTISTIC BLUE PRINTS.

THE end of the summer's wanderings, camera in hand, in field and forest has come, and, with negatives all developed, the amateur's thoughts turn to the vexed question of printing. In these salad days of photography he has a wide field of choice. For his own collection there are the albumen, platinum, and bromide papers; but these are rather expensive methods, and hardly feasible for the large number of gift pictures which one likes to send to friends.

Here the blue print holds the field on the score of cheapness, and, when properly done, for delicacy and beauty as well. For some years I have been in the habit of making up a large number of blue prints for holiday gifts. These have all been made directly on the cards, doing away with the trouble of trimming and mounting; and with the addition of a plate-mark to give them a finish, they are all one could wish for the purpose for which they are used. Almost any good surface card-board answers well. I am in the habit of using two or three-ply bristol board, which seems to produce a richer blue than most other card-boards.

Any of the numerous formulas may be employed for sensitizing without much affecting the final result. My own formula is: Red prussiate of potash, sixty grains, water, one ounce; ammonia citrate of iron, one hundred grains, water, one ounce. The potash solution may be mixed in quantity, as it keeps well, but the iron solution should be mixed only as wanted for immediate use; the two solutions are mixed in equal parts immediately before using, and are applied to the cards with a Buckle's brush, which is nothing more than a piece of white cotton flannel, doubled and bent over the end of a strip of glass and held in place with a rubber band. The ribbed side of the flannel is the one to use. In default of this, a soft sponge may be used.

The solution is evenly applied, care being taken to avoid streakiness by not having the brush too wet and by brushing lengthwise and across the cards. The sensitizing may be done in subdued daylight. The cards soon dry, and are then ready for exposure.

As every one knows, the best negatives for blue prints are those which we call plucky. None of the iron processes take kindly to thin negatives, and it is well to bear this in mind when selecting the negatives from which to make blue prints. The cards should be somewhat larger than the negatives, in order to leave a liberal margin of white card around the print. I use eight-by-ten cards for all sizes up to the whole plate. The printing-frames must be as large as the cards, and provided with glass fronts. In order to protect the margins of the cards and insure their washing out, white masks of opaque paper, cut the same size as the cards and having a central opening the size of the print, are placed over the negatives, which are laid in the centre of the printing-frames.

After printing, until the shadows are deeply bronzed, the cards are thoroughly washed, in order to prevent subsequent yellowing of the whites. Before they are quite dry the plate-mark is put in. For this purpose a sheet of hard card-board is cut slightly larger than the printed portion of the cards, sufficient to leave a good half-inch margin around the picture, and the corners are slightly rounded off.

Thin sheet brass is better if much work is to be done, but the hard card-board answers fairly well. The proper position for the plate-card is easily ascertained by

laying a piece of glass of the same size over the picture, and marking or scoring the two upper corners with an ivory paper-knife. The glass form is then removed, and the plate card put in place. The print is then placed on a piece of thick felt, the plate-card is covered with one or two thicknesses of blotting-paper, and the whole put under a letter-copying press for a minute or two. When removed from the press the print will be found to be surrounded with a mark closely resembling the plate-mark seen in copper-plate engravings. When dry the prints are ironed or run through a burnisher to straighten them.

A very good substitute for embossing may be given to the margins outside the plate-mark by cutting out an opening, corresponding in size to the plate-card, in a sheet of coarse sand-paper. After removing the plate-card from the print, the sand-paper is carefully adjusted in place, and the pressure is again applied, thus producing indentations in the margins of the cards which at times have a very pleasing effect.

Three or four of these prints, bound in a cover of water-color paper by punching a hole in the upper left-hand corner and tying a bit of ribbon, make a very pleasing and inexpensive birthday remembrance for a friend, and reflect no discredit on the taste of the maker.

There are many other charming applications of the idea ; but they must wait for a subsequent paper for description.—W. H. B., in *American Amateur Photographer*.

THE EFFECT OF RETOUCHING ON THE EYESIGHT.

THE greater danger to be apprehended by retouchers is the straining unknowingly of the accommodation of the eye too severely. Every photographer knows the effect of a diaphragm in a photographic lens, how it makes objects really out of focus appear sharp and distinct on the focusing screen. In retouching the eye is provided by nature with a very small diaphragm, which enables the worker to see details of his negative when his eye is fairly close to it, though ordinary print could not be read at that distance.

The brighter the light the smaller the diaphragm (or, in other words, the pupil of the eye), such is the wonderful character of this natural diaphragm ; and so the retoucher may wield his pencil at a distance at which he could not see distinctly if he were working, say, on a piece of drawing-paper, and thus he daily strains its powers. The older a man gets the further from his eyes does he need to hold an object to see it distinctly. But if he obtain a pair of spectacles he can see plainly, although he bring the object nearer again,—the stronger the glass the nearer. So with retouchers, when their eyes feel strained, if they work too close to the negative, let them wear spectacles. It is, unfortunately, so often said : " Don't use spectacles,—you'll get so used to them that that you cannot do without them ; " but the remark is absurd.

If spectacles are once needed it cannot be expected that the eyes will of themselves go back to their original condition ; but it is false to imagine that optical aid will cause the eyes to change more rapidly than when such aid is not made use of, and equally false is it to believe that carefully-selected spectacles will injure the vision.—*British Journal of Photography*.

ALBUMEN PAPER.

READ BEFORE THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

WHAT can be said of Albumen Paper,—that long-suffering, ill-used servant of the photographer? How often has it been abused in the columns of our periodicals; how often do we hear the cry that it does not fill the requirements of the photographer; and how often have the manufacturers endeavored to displace it in public favor by the introduction of collodion and gelatine papers.

Notwithstanding that albumen paper has long outlived its infancy, it is still subject to many diseases incident to childhood, namely, scarlet-rash, measles, spotted fever, and eruption of the skin, etc., and then the many cases of general debility and weakness, that impure, impoverished condition of the blood, producing the distressing malady-blisters, which are the worst of all, and by far the most difficult to cure. All this may be true, and yet I know of nothing more amenable to kind treatment than albumen paper.

It will not be necessary to go into the particulars of its manufacture,—they are too well known. In fact, nothing that I can say is entirely new. The whole story is something more than a "twice-told tale." With the full knowledge of its manufacture, and with the instructions given in the standard text-books, it is difficult to understand why so many complaints appear in the columns of our magazines. One cannot run through a copy of any one of our photo journals without meeting subjects with such titles as, "How to Prevent Measles," "How to Prevent Blisters," "What I Know About Blisters," etc.

A photographer from Texas, writing to a photographic journal, says that for ten years he has been trying to find a brand of paper that would blister under his treatment. Another reports, in the next number of the same magazine, that all the brother has to do is to come over to this country, and he will be seeking a brand of paper that will *not* blister. One will advocate plenty of alkali all through the manipulations, and a weak hypo-bath, with about an ounce of strong ammonia to each gallon of solution,—and defies blisters. Another says, not so much ammonia, and a strong fixing bath. One suggests from thirty to forty minutes. One writes that the water is so hard in his locality that he can't do anything with his prints in toning and fixing unless he first softens the water with more lime or ammonia, and that his prints were covered with a white deposit, which he cleaned off with acid solution after they were fixed and washed.

It is not my purpose to enter into any argument as to the best method one should employ in the production of silver prints on albumen paper. Any of the methods given in our standard text-books are thoroughly reliable, and the mere fact of their being published in these books is a sufficient guarantee of merit. Therefore, this being the case, it simply resolves itself into the manipulation and the working. There are certain rules to be observed, namely, cleanliness and an attentive regard to the condition of the chemicals and weather; this done, the intelligent printer is prepared for any emergency, and watches the barometer very much as the physician would the pulse of his patient, and guards against the varying conditions of the temperature, and thereby prevent the ills so much complained of. A little experience and observation will soon teach him that red measles indicate weak silver, or a not over-strong bath and insufficient fuming; that black

measles show that his paper is insufficiently dry before fuming; that rusty brown printing means an acid condition of the silver solution, or a bath very much clogged with impurities, albumen, etc. These two faults will also produce red measles. (At a time like this the bath must be renovated by evaporating and sunning.) That print which comes up hard and blue, lacking brilliancy, and with a crackling appearance, indicates a very alkaline condition of the bath. Albumen paper will take up the silver solution more readily and evenly, if it is previously dampened in a box built for the purpose, than it will in a dry condition. When it is slightly limp, the tendency to tear in cold weather will be largely overcome; but this will not occur if the sensitizing room is kept at a uniform temperature of seventy degrees. Again, prints bronzed too deeply, even in the light shadows, indicate too much strength of silver, and will also produce measles of a peculiar kind, owing to the lack of silver absorption in the sheet of paper.

Do not forget that strong silver has a coagulating effect on the albumen, and that the paper must be floated sufficiently long to permit the complete saturation of the albumen film. If this is not done the effect will be much the same as when the silver is weak. In toning, the intelligent printer will learn that in those prints which evince symptoms of measles the disease will develop with frightful rapidity, and that the prints are forever ruined. He will observe that the rusty brown prints cannot be improved in toning.

He will also have cause to remember that prints which indicate excess of alkali will, ten chances to one, soften in the toning-bath, and the surface is likely to rub completely off; and that a too rapid action of the chloride of gold will cause a precipitation of the metal in the form of minute red spots. In such a case common salt, added in small quantities, will act as a restrainer. Any one can hinder the toning by too much salt or too much soda, and also thus assist in softening the albumen causing the blisters. All these things will teach the printer that in no case are extremes of strength or weakness, alkalinity or acidity desirable; and that the sure road to success is in the "happy medium" path. Now we must refer again to the diseases of the blood, namely, blisters.

We all know that strong acids and strong alkalies possess a wonderful affinity for soluble matter, and that for which the acid has no liking the alkali is sure to have a deep regard.

There are few things beyond the reach of both. Therefore it follows that, if any substance soluble in acids or alkalies is subjected to the action of acid or alkali solutions sufficiently long, a complete disintegration of the particles will take place. So it follows that a silver-bath, made strongly alkali, starts up the action of dissolution in the albumen sheet which is supplemented by heavy fuming, carrying on the action still further, and by the time it reaches the toning-bath the albumen is quite ready at times to part company with its support. In some cases the whole surface is affected; in others, in spots only. On the other hand, a treatment in which there is too much acid will act in much the same manner. Here then, to my mind, is the cause of blisters in albumen.

The above statement being accepted as a fact, there will be no difficulty in avoiding blisters. Each worker must be influenced by the condition under which he labors. If he is located in a district where the water he is obliged to use is about normal, we may say, then there need be no difficulty in keeping in the middle path. On the other hand, if he lives in a district where the water is thoroughly impregnated and charged with lime and salts of magnesia, then he had best adopt the plan

of working his chemicals slightly acid, and in some cases it may be necessary to treat the prints before toning with a bath of acetic acid water, thereby counteracting the evil influence of alkaline water. The actual cause, then, of blisters is the softening of the albumen film in spots that have been the most susceptible to the softening influence. This action has not been continued sufficiently long to effect a dissolution of the film itself, but has only acted in such a way as to loosen it from its support. Once loose, the water and air work their way through the porous back of the sheet, and consequently blister. If the effect has been produced through excess of alkali, one hardly wants to increase the evil by adding ammonia or soda to the hypo-solution. I doubt if softening is ever occasioned by extreme acidity. The prevailing idea is that everything should be worked in an alkaline condition; therefore one would hardly look for acid in a case of blisters. As I said in the first place, it is not my intention to make a long argument, and I have dwelt upon the subject of blisters because I think they are the greatest source of trouble.

One other point is the stretching of the paper. This is an important matter, especially in portrait work; for unless the printer is careful to cut his paper all one way of the sheet, a curious assortment of fat and lean portraits will be the result. This is the only way to avoid the difficulty. It can be partially overcome by immersing in gelatine and alcohol; but this, aside from the expense, would require too great an outlay of time for commercial work.

In conclusion, I would say that I have made no mention of any particular brand of paper, I believe that all the standard makes are good, and can be successfully worked by any of the ordinary methods, providing a proper amount of intelligence is incorporated into the manipulation.

JOHN R. CLEMMONS.

THIS is how our photographic exchange, *Lux*, of Amsterdam, renders one of our Yankee jokes in the vernacular of that country.

Vreemdeling (tot bediende in zulk een hotel): "Het schijnt dat hier geen vergunning is."

Bediende: "Neen, Mijnheer, maar al onze kamers zijn voorzien van electrische schellen. U kan dus naar uw kamer gaan, en, indien U wenscht een 'Kodakgrogje' bestellen."

Vreemdeling: "Een 'Kodakgrogje,' wat is dat?"

Bediende: "U drukt op de knop; wij doen het overige."

THE question of preventing or minimizing halation when photographing interiors with strongly-lighted windows is an ever-present one with the all-round photographer. The following communication from Mr. Thomas Earp on the subject to *Photography* may therefore prove not uninteresting. He says: "I have found that by placing a mask of suitable form in front of the lens, and in a direct line with a window or other source of light, and working with a larger stop than usual, thus utilizing the edges of the lens, halation may be minimized, and in many cases quite done away with. At fifteen feet from a window occupying nearly half of the wall space, I have thus succeeded in getting a picture nearly free from halation, and giving superior detail in dark corners."

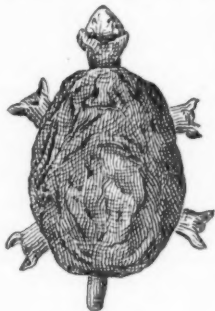
AMATEUR EXPERIENCES, VIII.—AMPHIBIAN PHOTOGRAPHY.

[The *Testudinata cibeba* Snapp.]

MR. EDITOR:—A member of the Leopardville Camera Club has had a cruel joke played upon him,—I allude to our worthy vice-president, the deacon; and what is more, it is all your fault. It came about thusly. The September JOURNAL contained the illustrated paper on "Entomological Photography." At the next regular meeting of the club we made the subject the order of business, with the result that a number of us concluded to take the matter up and go into the caterpillar business; but as the season was already late, we did not have the result which we had hoped for. However, some practical joker, presumably a member of our club, yet with neither the fear of the law nor any respect for old age in his composition, conceived and executed a plan, which, although it was hard on our old friend, made up for our own failure. It was about a week before our regular stated meeting that a parcel was in the express office addressed to the deacon. It apparently came from Southern California, where he had some relatives. On opening the parcel it was found to contain several small turtles, carefully packed in cotton. There was also a neatly-written note in a lady's handwriting, which stated that the enclosed were specimens of an exceedingly rare *Testudinata trionyx* Linn., which were gathered in season by the natives and used as food, both in the fresh and dried state; also that the head, feet, and tail were dried separately, and frequently used by the better classes in connection with the "pulque" of the tropics; further, that in the East India Islands the heads and feet were gathered in large quantities for export to Europe, where they were sold under the name of *Dianthus caryophyllus*, and used largely in condiments and sauces; while in the Levant, on the Mediterranean, the drying and preparation of the bodies formed a special industry, and from whence large quantities, after being packed in ornamental fancy boxes, were sent to the various capitals of Europe under the name of "damascencercibeben." The letter cautioned the deacon from smelling or tasting the specimens, and closed with the suggestion that the deacon photograph the specimen so rarely to be seen in its natural state, and bring the whole matter before the local photographic club.

That the recipient of the package was pleased does not express the situation. To say that his heart leaped with joy is drawing it mild. He lost no time in sending for the corresponding secretary, and begged for the use of our camera. The request was granted; and in a few days the negative was made, and the good deacon, whose mind was free from guile, devoted his time to the preparation of the paper for the meeting. At last the eventful night came. Every member had received an invitation from the deacon to be present. After the routine business was finished, our president stated that our vice-president would now favor the members with a paper on "Amphibian Photography," illustrated by prints of a rare specimen received from Utopia, in Lower California, and which was rarely seen in its complete state in this latitude; further, that the negatives, as well as the beautiful cyanotypes, were the work of the orator of the evening. After this introduction the deacon arose, and read an elaborate descriptive paper, based entirely upon the facts contained in the letter which was received with the parcel. He was listened to with marked attention and the respect due his age and position. After he was through the blue

prints were handed around, and he was congratulated from all quarters. A resolution of thanks was offered and unanimously passed. A motion was also made that the MS. and negative be sent to a metropolitan magazine for publication. Nothing



Tes. cibeba Snapp.

could have pleased the old gentleman better. Little did the innocent old soul think that all was but a part of a deep-laid scheme. The motion was seconded and carried without a dissenting vote. So far, so good; all was as well as the proverbial marriage bell. But this serene atmosphere was destined to be dispelled,—the cloud speck appeared. At this stage one of our members innocently (perhaps, in view of future events, with malice aforethought) ventured the suggestion that one of the original specimens be produced for the edification of the club. The deacon assented, and brought forth a little box, from which he took out one of his *Testudinata* carefully impaled on a large cork. This

was passed around among the members. When it reached the one who had suggested the production of the original, he at once stated that the body of the rare "amphibian" looked suspiciously like a fine flattened raisin, and that the head, feet, and tail certainly reminded him of cloves,—in fact, they looked like cloves, smelled like cloves, felt like cloves, and would be found to taste like cloves, and that the artistic combination would be a credit to any lady superintendent of a church fair. That this statement caused a sensation is no name for it. The president rapped for order, the deacon was indignant, several cried shame, while others denounced the offending member for his irrelevancy. During the babel which ensued a cool-headed member turned up the lamp so as to give a brighter light, and asked to examine the specimen. The interest of the lady members was especially excited, and they took a look at the specimen; when one, with the inquisitiveness of her sex, to settle the matter, caught hold of the head, and giving a slight pull, a fine clove was the result; a general laugh at the deacon's expense followed. The latter, however, was inconsolable. The fondest hope of his life had been that he would some day see his name in print as the author of an essay. The realization seemed to be within his grasp; but just at that very moment, like a veritable "will o' the wisp," it vanished as he thought he had clutched it. Nothing could induce him to think that he was the victim of a practical joke; he thought that some one had changed the specimen while it was being handed around; further, he saw nothing to laugh at. But the climax was reached when the member who had brought about the denouement asked whether *Dianthus caryophyllus* was not the botanical name for the clove, and "damascenercibeben" a German term for the finest imported raisins. The old deacon now commenced to see through the mist. Notwithstanding the expressions of sympathy from his friends, the old gentleman went home sad and dejected. Scientific photography had lost its charm for our worthy old member. After the deacon had left a motion was made that a committee of three be appointed to ferret out the perpetrator of the joke, and if it be found that he was a member of the club that he be expelled forthwith. Carried. Adjourned.

J. FOCUS SNAPPSCHOTTE.

P. S.—I am on the committee,—am afraid the task is hopeless, notwithstanding the number of "clues."

PHOTOGRAPHING CHILDREN.

THERE is nothing connected with the art of photography so pleasing to the artist as a successful picture of a pert little miss or a bold bonnie lad. Children generally drop into pretty and graceful poses, something so natural and life-like that it seems, and is, indeed, impossible for any artist to improve. However, no matter how graceful a pose may be, no matter how clever may be the expression, all may be spoiled and rendered unartistic by certain arrangements of dress or peculiar grouping of colors. The patient photographer cannot, *dare not*, tell an amiable mamma to take her bright little boy home and dress him so that his photograph will be a gem of photography, and a comfort and pleasure both to mamma, papa, sisters, cousins, aunts, and other relatives in whole. No; he must do the best he can with what is presented. So, kind mamma, or whoever is about to bring a child to the photographer, I give a few hints. If you will follow them, that is, so far as dress is concerned, and will leave the artist to exercise certain judgment in the way of surroundings in the picture, you will be pleased greatly with the results.

Never dress a child in velvets, unless of light-colored hues. Your bonnie boy may possess a most elegant green sack; but the poor artist feels like tearing his hair—and does when in his dark room—over the impossibilities of green to come out nicely in the finished photograph. Large stripes and checks in fabrics are *not* artistic. They detract from the sweet simplicity of the face and pose, and spoil the picture in general. Do *not* ask the artist to take a picture of your boy full length when he (the boy, of course) is dressed in knee pants. Boys' feet are proverbially large, and they loom up immensely when attached to a pair of slim legs clad from knee to ankle in stockings. Boys generally do not require such striking effects in photography as girls do; so, unless you desire a character picture of Jamie, Joe, Bob, or what not, dress him in quiet colors; and there is nothing so befitting a boy in a picture as gray or very light blues, browns, or some such mild hues. As for girls—and I now speak of little tots—you cannot improve your white soft laces and graceful clinging folds. Now, when I say this, I mean blondes. If your charming tot is a brunette, dress her in cream-colored or dark blue or brown. There are certain reasons for doing so which no one but the artist can tell. He has to manipulate certain chemicals according to various subjects, and when you present a blonde to him dressed in light he is well aware of the good things he alone knows how to do for you. As for babies in long dresses, they always are in white; but do not worry too much over *its* picture; for, if you swoop down upon the gentle morsel five or six times in a minute you spoil the baby's temper and the artist's. Let him alone; he has taken more baby pictures than you ever saw, and if he doesn't bring into practice his years of knowledge and skill he isn't a good artist. But I can assure you nothing pleases him like making a successful picture of a baby; so leave him alone to his own dear task, and I'll warrant you he will please you.—H. S. KELLER, in *Ladies' Home Journal*.

MISUNDERSTOOD.—Photographer: "I am very sorry, Miss, but the negative I have taken is no good."

Miss DeVere: "What is the matter with it?"

Photographer: "It is spoiled by over exposure."

Miss DeVere: "Sir!"—*Munsey's Weekly*.

A SYSTEMATIC METHOD OF COPYING ENGRAVINGS.

FOLLOWING up the idea of preparing lantern slides from engravings in books, as thrown out by Mr. W. Bloxham, we devote this article, in deference to the wishes of several readers, to describing means by which the leaves of a volume, even if a heavy bound one, can be kept flat during the process of photographing its engravings.

By the method about to be described only one adjustment of the camera is necessary, for when the focusing has once been made it remains good not alone for that engraving upon which the adjustment was made, but for any number of others of the same size which may be photographed in succession.

The principle of the arrangement consists in having a strong wooden frame, with an aperture large enough to show the picture clear to the edges. This frame is erected near one end of a board, not less than the frame in width, and of a length sufficient to admit of the camera being placed upon it at the required distance. The volume of engravings is opened, and the selected one is pressed against the back of the frame and held in close contact with it during the operation of photographing. This is the principle. We now enter into a more detailed description.

The frame must be an inch in width and well jointed at the corners. Its size must be determined by that of the largest book containing the matter to be copied that is likely to be used. For smaller books it will hereafter be seen that due provision has been made. This frame must be fixed to the base-board by its outer edges, and must be raised from it to the extent of about two inches. The object of this is to allow a half-opened book to lie or rest upon the base-board, while the other part is pressed against the back of the frame, by which it is kept quite flat for focusing. The book is, therefore, supposed to be opened at a right angle, the lower half of it being passed under the erect frame and supported on the base.

To keep the book in position it must be clamped temporarily to the frame. This is done by two small carpenter's handscrews, procurable at every tool shop at a cost of about a shilling each. One jaw of this is applied to the back of the book, and the other to the face of the frame, and when screwed tight the whole thing is held rigidly. These handscrews or clamps may be had of various sizes, and of course their selection must be determined by the weight of the book likely to be copied from, as this latter may range from a strongly-bound volume of the *Art Journal* to a single part of an octavo.

The camera is made to travel on the elongated table or base-board spoken of, and when the size and focusing have been roughly determined it is fixed to the board by means of the tripod-screw, and the focusing then finally adjusted by the means contained in every camera itself. The whole may then be lifted and placed on a table near the window, so as to have the engraving properly lighted.

When the focusing has been once done properly, it stands to reason that as the ground glass, the lens, and the plane against which the engraving is pressed are three constants, it will not be necessary to disturb the arrangements, as everything presented at the plane will be in sharp focus.

To accommodate books or prints of much smaller size than the largest which the frame is capable of holding, one or more loose inner frames must be provided like the holders or "kits" in a studio camera. These need not, however, be complete frames, as one having only three sides permits a better placing of

a small volume. The main condition in their construction is that when such a holder or adaptor is used its back shall be flush with that of the main frame. This ensures all printed sheets, whether they are large or small, that are pressed in contact with erect frame being invariably in sharp focus.

The precise location of the camera can either be ascertained by trial or by the application of the well-known rule by which we shall close this article. But at starting let it be well understood that whatever the focus of the lens that is to be used, the camera must be capable of being expanded to twice that focus in order to copy a thing its own size, and if the camera will not do this then must a lens of shorter focus be got.

The rule for reducing a picture is this: Having ascertained how many times an engraving exceeds in dimensions the negative to be taken, add one to the number of times and multiply by the focus of the lens, to show the distance at which the negative must be from the lens. The distance between the lens and the sensitive plate is found by dividing the product above given by the number of times one is larger than the other, the quotient giving the distance. As the lenses employed for such purposes may vary from 4 inches to 6 inches in focus, we shall give a few examples. With a lens of 4 inches focus, and a reduction of two times, the figures representing the distance between the engraving and the lens on the one hand, and the sensitive plate and lens on the other, will be respectfully 6 inches and 12 inches. If the reduction is three times, the distances will be $5\frac{1}{4}$ inches and 16 inches. For a 5-inch lens for a reduction of two times, it would be $6\frac{3}{5}$ inches and 20 inches. For a 6-inch focus lens, the two or three times would be respectively 9 inches and 18 inches, and 8 inches and 24 inches.—*Optical Journal*.

SHOULD THE PHOTO-ENGRAVER RANK WITH THE ETCHER?

THE art of photo-engraving has arrived so near to perfection that it is next to impossible to distinguish a photogravure from an etching. With this state of affairs existing it is not remarkable that it has become necessary to define the position of an etcher and of a person who reproduces art works by photo-mechanical means. This interesting, and it may be added, important question is very thoroughly discussed in the current number of the *Magazine of Art*. The discussion was precipitated by a recent article in the *Portfolio*, in which Philip Gilbert Hamerton, in the course of some remarks on Joseph Pennell's book on "Pen Drawing," states: "If I make a drawing with a pen, using Indian ink on bristol board, M. Dujardin will make a plate from my drawing which is really an etching, for he has bitten it, and it will be better plate than I could bite myself, on account of his wonderful skill."

The editor of the *Magazine of Art* finds that Mr. Hamerton followed up his statement in a newspaper with these words: "It would, therefore, be perfectly legitimate to call photogravures 'etchings,' if only it were clearly understood that the drawing was due to the draughtsman, and the biting to the engraver." Again, in the *Portfolio*, Mr. Hamerton said: "Critics are afraid of seeming ignorant if they call heliogravures etchings. Of the two titles it is the word heliogravure which is inaccurate. The result is not merely something that looks like an etching. It is an etching."

So much for Mr. Hamerton. Now the *Magazine of Art* defines the two processes. "Etching," it begins, "etymologically, of course, only means biting or eating; technically and commonly it means both the drawing and the biting done on the copper-plate by the same artist. The production of a photogravure is a very different matter. The artist makes his finished drawing exactly as he wishes it to appear in the print on paper. He may add washes to represent tones of printer's ink, remarques, rottenness, rice scratches, and anything he wants to put on it.

"The drawing is photographed. The negative obtained is photographically copied in the etching ground, or photographed directly on to it, and the copper under the lines can be laid bare by careful washing. From this point Mr. Hamerton says the process is exactly similar. But here we cannot agree with him. The original etcher not only has to enlarge every line, but bite it in as well. The mechanical reproducer has merely to sink his design a certain depth into the metal, as every etcher knows, a vastly simpler matter,—so simple, in fact, that even Amand-Durand will tell you how much it will cost per square inch, and almost the hour at which you can have the plate. Yet the result in his hands will be indistinguishable from that of the original etcher.

"The consequence is that unless this distinction is to be most carefully borne in mind, in a few years it will be absolutely impossible to tell whether a plate has been directly etched or mechanically reproduced. Artists, critics, and dealers can hardly tell the difference now, and the word of the man who made it will be the only guarantee of its genuineness." The article then proceeds to tell how easy it is for unscrupulous mechanical producers to reproduce Durers and Rembrandts in quantities. "Of course," the writer goes on, "these things can be done, and are done now; but we fear that Mr. Hamerton hardly realizes how, by printing what he has, he may have encouraged this deception. They should not be called etchers in the sense that would only confuse them with direct etchers; nor should their work be called etching if we wish any longer to preserve that art. They must either be described as some sort of photo-engravers, or a new name must be invented for them and for the art at once."—*Philadelphia Ledger*.

THAT ever-recurring question, the shock to the camera resulting from the impact of the instantaneous shutter, has again been recently dealt with by M. A. Goderus in the *Bulletin Belge*. This gentleman points out the consequences that must necessarily ensue from the cause in question,—how the front of the camera is liable to kick up when the objective is released, and to be knocked downwards when it finishes its course, and a variety of other results too unpleasant to mention. To read M. Goderus's paper one would think that to attempt to obtain a correct instantaneous exposure must be a perfectly chimerical project. Instantaneous photographs, and even occasionally good ones, are however obtained, M. Goderus notwithstanding. To obviate these evils, M. Goderus proposes to have the camera arranged on one stand and the objective on another, and to have them united by an india-rubber tube. This is very good, doubtless, from the theoretical point of view, but sometimes when one wishes to make an instantaneous exposure, one is in a hurry, and in such cases M. Goderus's arrangement would lead to profanity of language.—*British Journal of Photography*.

GENERAL NOTES.

OUR esteemed exchange, the *Photographisches Wochenblatt*, No. 35, of Berlin, thus comments upon our late caution to photographers about to visit the Fatherland, which has been copied in various journals at home and abroad, viz.: "We rejoice ourselves, that our newly article out of the 'teutschen Glashaus' also beyond the canal and the ocean, happiness excited has. He is with manifold gocosse additions in English and American journals uptaken. One periodical appears entirely almost believed to have, that our fellow-laborer earnestly these propositions had made."

THE following two paragraphs are going the rounds of the English press:

"AMATEUR photographers are getting dangerous in America, if we may judge by a story which is told concerning some of them in a United States exchange. Hard up for 'something thrilling,' a party of amateur knights of the camera are reported to have set fire to an old beached steamship. The baymen were very naturally 'amazed at the audacity of the proceeding,' and the party were put to flight. Happily, enthusiasm in the photographic art, combined with lack of subjects, has not as yet led the amateurs of Merrie England to such extremes to gratify their ends, but if a mania for the making of 'thrilling' subjects in this way sets in, we may expect to read in the morning papers of 'The Burning of St. Paul's Cathedral,' 'Blowing Up of the Houses of Parliament,' or 'An African Lion Loose in the Strand,' the perpetrators of the acts being, not the Fenians, Invincibles, or Dynamiters, but 'a party of amateur photographers.'"

"PHOTOGRAPHERS should be very careful how they handle both acids and alkalies, and it may be as well to warn them particularly when opening bottles of ammonia in warm weather or warm rooms to direct the neck of the bottle away from them. In our own laboratory experience we once saw an accident which nearly resulted in the blinding of the victim through the spurting up of ammonia from an incautiously handled bottle, and now we learn that a somewhat similar mishap has occurred in Ooty (India), where Mr. Penn, a well-known photographer there, was opening a pound bottle of ammonia in the dark room of his studio, when the contents spurted up like a fountain in his face, damaging his right eye and blistering his tongue and lips."—*Ex.*

ANOTHER PROFESSIONAL USE OF PHOTOGRAPHY.—A marriage broker is said to being an excellent business in Bachmut, Russia. Anybody coming to Bachmut is sure to be met by this man at his hotel with the inquiry: "Sir, do you wan to marry?" The marriage broker carries an album full of photographs of people of both sexes who would not mind getting married. On each photograph may be found details concerning the social and financial standing of the person pictured. On his arrival at Bachmut, the broker visited every house of interest to him in his special line, and was kindly received everywhere. There are already many happy brides and grooms in the city to whom he points with pride as his customers. Bachmut is especially favorable for operations of this nature, it is said, as it contains many girls of good looks and fair fortunes.—*Photographic Times.*


IN Berlin there has existed since 1885 an institution for the purpose of instructing young ladies of the better classes in various branches of employment suited to enable them to earn an independent living. The school of drawing attached to the institution has recently been supplemented by the addition of a department for instruction in photography, which was opened on October 1. Instruction is to be supplied not only in the various printing processes, but also in retouching, and even in book-keeping,—in everything, in fact, which may qualify the "young ladies of the higher classes" to occupy situations in photographic establishments. Herr Schultz-Hencke, hitherto assistant in the Royal Technical High School, is to act as manager.

AUSFÜHRLICHES HANDBUCH DER PHOTOGRAPHIE. By Dr. J. M. Eder. Parts I., II. William Knapp, Halle a S. A new edition of Dr. Eder's well-known work. From the two parts received it gives promise of even greater scope than the first edition; but few readers will be able to form any idea of the enormous amount of labor expended in collecting, verifying, and arranging the material used in this work. This work promises to be not alone an encyclopædic work, but an exhaustive critical history from the earliest times to the present day. Never before has the early history of photography been dealt with in so thorough and scholarly a manner as in the present edition of Dr. Eder's work. Going back to the early days of Aristotle, he goes step by step until he reaches Kirchner, whose portrait we introduced to our readers about a year ago (*AM. JOUR. OF PHOTO.*, Vol. X., pp. 327-334). Considerable space is also devoted to "gypantia" (reproduced in fac-simile, *AM. JOUR. OF PHOTO.*, Vol. XI., pp. 121-127), then passing on to Scheele, Priestley, and others, until Senebier is reached, an experimentalist of whom more deserves to be generally known. The work of Davy and Wedgwood is given due credit, the first number closing with the close of the eighteenth century. Section 8 of Part II. is an exhaustive chapter, which includes the period from "the discovery of photography in natural colors by Seebeck (1810), to the publication of the daguerreotype process (1839)," and contains much information, and it will no doubt prove a revelation to the photographic student. Part II. closes with the second chapter, which deals with "the discovery of heliography and daguerrotypy by Nicéphore Niepce and Daguerre, with a survey of the advancement in photography up to the present time." It is stated that the work will be completed in about forty parts. If all the parts are as conscientiously and carefully prepared, the work will stand without an equal in photographic literature, and should be on the shelves of every public library, as well as in the hands of every photographer, amateur as well as professional, who is conversant with the German language. We congratulate Dr. Eder, and wish him success.

ADHESIVE PASTE.—A paste which will stick anything is said by Prof. Winchele to be made as follows: Take two ounces of clear gum arabic, one and a-half ounces of fine starch, and half an ounce of white sugar. Dissolve the gum arabic in as much water as the laundress would use for the quantity of starch indicated. Mix the starch and sugar with the mucilage. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar, and be kept so. It can be kept from spoiling by the addition of camphor or a little oil of cloves.—*Chemist and Druggist.*

LITERARY AND BUSINESS NOTICES.

ANNOUNCEMENT.

 WE again call the attention of our patrons to the fact that with the close of the current volume the price of the AMERICAN JOURNAL OF PHOTOGRAPHY will be advanced to twenty-five cents per copy, or two dollars per year if paid in advance. Commencing with No. 1 of Vol. XII., January, 1891, the JOURNAL will be presented in an improved form. We expect to present several photographic surprises to our readers during the coming year. We will further say that we will continue to make it our aim that the AMERICAN JOURNAL OF PHOTOGRAPHY shall be indispensable to every photographer,—amateur, professional, or theorist.

CAMERAS, LENSES, SHUTTERS, ETC., Vol. I. (Anthony's Series, No. 30); Experimental Photography, by C. J. Leaper, F.C.S. (Anthony's Series, No. 31); Art Photography in Short Chapters, by H. P. Robinson (Anthony's Series, No. 32); Platinum Toning, by Lionel Clark (Anthony's Series, No. 28),—have been received from the publishers. These works will form a valuable addition to any photographic library. We call the attention of our readers to the above as well as the preceding numbers of the Anthony Series.

GESETZE UBER DAS URHEBERRECHT, G. Hedeler, Leipzig.—A collection of all the existing copyright laws and treaties is being prepared by Mr. G. Hedeler, of Leipzig. The first part, just out, contains Germany, Austria, Great Britain, France, Italy, Switzerland, and the United States. An exhaustive work on the subject of copyright laws—of especial value to all publishers.

LANTERN SLIDES BY PHOTOGRAPHIC METHODS, by Andrew Pringle; The Optical Lantern, by Andrew Pringle. Nos. 34 and 35 of Scovill Photographic Series. Published by the Scovill & Adams Company, New York.—The name of the author of above works is in itself a sufficient guarantee for the value of the matter. Both works are fully illustrated, and with their clear type and fine presswork compare favorably with the preceding numbers of the series. As the photographic boom is extending to the optical lantern in this country as well as England, the two works come out at an opportune time,

and should be in the hands of every intelligent amateur photographer.

THE DEVELOPMENT OF GELATINE DRY PLATES: A Practical Manual for the Amateur, by Rev. W. H. Burbank.—A small volume of about one hundred pages. The reverend author in his introduction states that his reason for the present effort is the fact that "there is at present no exhaustive treatment of the important question of development readily accessible to American amateurs." The work gives a reason for the various formulæ and methods recommended, and enters at length into the theory of development. It starts with the general principles and goes through all the various manipulations to the final washing. Intensification and reduction is also treated of.

PHOTOGRAPHING INTERIORS.—Photography is an all-the-year-round recreation for amateurs. P. C. Hadley, Jr., in *Outing* for November, calls the attention to the timely subject of interiors, which has been sadly neglected. He says: "Numerous articles have appeared on the subject, but in so far as I have seen the directions have been so general and incomplete that bungling results must have followed.

"Among professional photographers this branch of the art is little understood; many do not care to deviate from portraiture; others are contented to reach partial and imperfect results; yet some few do excel in this department. Speaking from the standpoint of one who groped here and there in the vain endeavor for light, and who failed to acquire a correct knowledge save by a persistent experience and by reducing these generalities to an actual method, 'I know whereof I speak.' No rule can be laid down whereby one can go to work and never fail; but the principles can be so stated that the results will wholly depend for their success on the instruments employed and the judgment of the operator."

It is evident from the tenor of the above extract that the writer is not up on the photographic literature of the present day. If he would read any of the photographic journals—or THE AMERICAN JOURNAL OF PHOTOGRAPHY in particular—he would hardly make so broad an assertion as the above. He would further find that the directions given in this JOURNAL are almost invariably practical and lead to good results.

